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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NG, CHRISTINE Y

ART UNIT	PAPER NUMBER
2663	3

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/609,913

Applicant(s)

MIZELL ET AL.

Examiner

Christine Ng

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 11-14 and 22-39 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10 and 15-21, drawn to a packet-switched network between a controller and cell sites, classified in class 370, subclass 328.
 - II. Claims 11-14, drawn to network layers in a mobile communication system, classified in class 370, subclass 469.
 - III. Claims 22-39, drawn to multicasting across a packet-switched network, classified in class 370, subclass 312.
2. Inventions in claims 1-10 and 15-21, claims 11-14 and claims 22-39 are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are grouped according to their distinct functions. Claims 1-10 and 15-21 refer to a packet-switched interface between a controller and cell sites that transmits and receives packet data according to an Internet Protocol. Claims 11-14 refer to a protocol stack with various network layers for controlling packet data transmission across a packet-switched network in a mobile communications system. Claims 22-39 refer to multicasting a message from a unit to a plurality of cell sites across a packet-switched network, the messages including provisioning and paging messages.

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3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Dan Hu on December 12, 2003, a provisional election was made without traverse to prosecute the invention of a packet-switched network between a controller and cell sites, claims 1-10 and 15-21.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 11-14 and 22-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4-6, 15, 17 and 18 are rejected under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al.

Referring to claim 1, Mustajarvi et al disclose in Figure 1 a system for use in a mobile communications network having a plurality of cell sites (Cell1 and Cell2). The system comprises an interface (Gb) adapted to communicate with a cell site (Cell1) over a network (frame relay network). The system also comprises a controller (SGSN1)

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adapted to transmit and receive data through the interface (Gb) over the network (frame relay network) according to a packet-switched protocol. Frame relay, a packet-based protocol, is used over the Gb interface between SGSN1 and BSC1. Refer to Column 1, lines 33-45 and Column 2, lines 25-28.

Referring to claim 4, Mustajarvi et al disclose in Figure 1 that the interface (Gb) and controller (SGSN1) comprise elements of a General Packet Radio Service system. Figure 1 illustrates a GPRS network architecture. Refer to Column 6, line 47.

Referring to claim 5, Mustajarvi et al disclose in Figure 1 that the network comprises a Gb network (interface between BSC1 and SGSN1). Refer to Column 2, lines 25-28.

Referring to claim 6, Mustajarvi et al disclose in Figure 1 that a serving General Packet Radio Service support node comprises the interface (Gb) and the controller (SGSN1). A serving GPRS support node provides "a packet services for mobile data terminals via several base stations, i.e. cells" (Column 1, lines 41-42) through the Gb interface.

Referring to claim 15, Mustajarvi et al disclose in Figure 1 a method of communicating in a mobile communications system having a cell site (Cell 1), a system controller (SGSN1) and an interface (Gb) between the cell site (Cell1) and the system controller (SGSN1). The method comprises transmitting and receiving data packets over the interface (Gb) according to a packet-switched protocol (frame relay). Frame relay, a packet-based protocol, is used over the Gb interface between SGSN1 and Cell 1. Refer to Column 1, lines 33-45 and Column 2, lines 25-28.

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Referring to claim 17, Mustajarvi et al disclose in Figure 1 that transmitting and receiving comprise transmitting and receiving over a Gb interface. SGSN provides "a packet services for mobile data terminals via several base stations, i.e. cells" (Column 1, lines 41-42) through the Gb interface.

Referring to claim 18, Mustajarvi et al disclose in Figure 1 a serving General Packet Radio Service support node for use in a mobile communications system having cell sites (Cell1 and Cell2). The SGSN comprises an interface (Gb) to one network (frame relay network) coupled to the cell sites (Cell1 and Cell2), the interface (Gb) comprising a packet-switched element (frame relay protocol) to manage communication of packet-switched data packets to the cell sites (Cell1 and Cell2). Frame relay, which is used over the Gb interface between the SGSN and BSS, provides "a semipermanent connection for which several subscribers' LLC PDUs are multiplexed" (Column 2, lines 25-27).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,584,098 to Dutnall, in further view of U.S. Patent No. 6,628,617 to Karol et al.

Mustajarvi et al do not disclose that the packet-switched protocol is an Internet protocol, or a connectionless packet-based protocol.

Dutnall discloses that GPRS provides a connectionless, packet-switched support for data transmission which is based on the Internet Protocol and allocates "resources only when there is something to be transmitted" (Column 9, line 14). It also provides variable bandwidth on demand of up to 76.8 kbit/s. Refer to Column 9, lines 12-19. Furthermore, Karol et al teach that in connection-oriented systems such as frame relay, connection setup is performed before information is transmitted whereas in connectionless systems such as IP, no explicit connection is setup prior to transmitting datagrams. Connection-oriented systems encompass processing overhead including "determining a route for the connection, allocating bandwidth (and possibly buffer) resources on the links and switches on the route, assigning and distributing labels or positions based on whether the CO network is packet or circuit switched, respectively, and programming connection information into switch fabrics and endpoints" (Column 1, lines 32-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the frame relay protocol (connection-oriented and packet-based) between the controller and cell sites in the invention disclosed by Mustajarvi et al with an Internet Protocol (connectionless and packet-based); the motivation being that IP does not need to establish connection setup before data transmission, thereby preventing the "delay and processing overhead associated with connection setup in connection-oriented systems" (Column 1, lines 42-43). Also, IP provides variable bandwidth demand of up to 76.8 kbits/s.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,456,627 to Frodigh et al. Mustajarvi et al disclose in Figure 1 a node (Cell1) for use in a mobile communications network having a system controller (SGSN1). The node (Cell 1) comprises a module (BTS1) adapted to communicate with the system controller (SGSN1) according to a packet-switched protocol. Frame relay, a packet-based protocol, is used over the Gb interface between SGSN1 and BSC1. Refer to Column 2, lines 25-28.

Mustajarvi et al do not disclose one or more radio transceivers coupled to the module (BTS1) and adapted to communicate with mobile stations.

Frodigh et al disclose that radio transceivers are connected to a base station to communicate with mobile stations. As shown in Figure 6, "the radio transceivers (TRXs) 76 are coupled to the antennas 24 through combiner/duplexers 80 that combine downlink transmission signals from the TRXs 76 and distribute the uplink received signals from the mobile station 12" (Column 10, lines 28-32). Furthermore, as shown in Figure 7, the radio transceiver include uplink components to receive signals from mobile stations: down-conversion block 91, sampler block 92, demodulator 96, and channel decoder 97. Refer to Column 10, lines 35-63. The radio transceiver also includes downlink components to send signals to mobile stations: channel coder 102, modulator 104, up-conversion block 106 and power amplifier 108. Refer to Column 10, line 66 to Column 11, line 10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include one or more radio transceivers

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connected to the module (BTS1) adapted to communicate with mobile stations; the motivation being to process uplink signals and downlink signals from the mobile stations through an antenna using up/down converters to convert between carrier and baseband frequencies and modulators/demodulators to encode/decode the data signal.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,456,627 to Frodigh et al, and in further view of U.S. Patent No. 6,628,617 to Karol et al.

Mustajarvi et al and Frodigh et al do not disclose that the packet-switched protocol comprises an Internet protocol. Refer to the rejection of claims 2, 3, 16 and 19.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,456,627 to Frodigh et al, and in further view of U.S. Patent No. 5,815,495 to Saitoh et al.

Mustajarvi et al and Frodigh et al disclose that the module is adapted to communicate data packets through a frame relay network. Refer to Column 2, lines 25-28. Mustajarvi et al and Frodigh et al do not disclose that each packet contains addresses identifying the node and the system controller.

Saitoh et al disclose in Figure 2 that one type of frame that is transmitted over a frame relay network contains the Data Link Connection Identifier DLCI field, a destination address field D, a source address field S, a control field C and an information field I. Refer to Column 4, lines 11-21. The S field can be used to identify the origin of the message (node) and the D field used to identify the destination of the message (system controller), both of which are used to route the packet through the

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network on a connection, which is set up prior to data transmission. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that each packet contains addresses identifying the node and the system controller; the motivation being that in connection-oriented systems such as frame relay, a connection must be previously set up prior to data transmission; a source and destination field are necessary to establish that predetermined connection.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,456,627 to Frodigh et al in view of U.S. Patent No. 5,815,495 to Saitoh et al, and in further view of U.S. Patent No. 6,584,098 to Dutnall.

Mustajarvi et al, Frodigh et al and Saitoh et al do not disclose that each packet contains Internet Protocol addresses.

Dutnall discloses in Figure 11 a TCP/IP frame that includes IP addresses for the source and destination (Element 110). Refer to Column 1, lines 41-44. In a packet-switched network, destination IP addresses are used to route a packet to its final destination. Data is transmitted "according to the availability of network resources at the time of the transmission of the individual packet" (Column 1, lines 22-23). Also, different parts of the data are routed by different parts of the network "if there is insufficient capacity on any one route for the entire message" (Column 1, lines 28-29). To do this, each data packet must carry an IP address indicating the destination of the packet, "so that at each node in the network, the packet can be routed toward its ultimate destination" (Column 1, lines 31-33). Therefore, it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to include that each packet contains Internet Protocol addresses; the motivation being that each node of the network needs to know the destination IP address of the packet in order to route it to its final destination.

13. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,512,756 to Mustajarvi et al in view of U.S. Patent No. 6,320,873 to Nevo et al.

Referring to claim 20, Mustajarvi et al do not disclose that the SGSN further comprises a User Datagram Protocol (UDP) transport component to manage connections over the network.

Nevo et al discloses in Figure 2B that a SGSN (Element 52) comprises a TCP/UDP transport component. LLC data packets are received by the SGSN (Element 52) from a mobile station (Element 40) and then translated by the SGSN (Element 52) into TCP/UDP packets for communication over a packet-switched network to a GGSN (Element 54). "TCP is generally used when a reliable data link, such as X.25, is required between MS 40 and GGSN 54; and UDP is used when such reliability is not required, as in IP transmission" (Column 7, lines 37-40). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include that the SGSN comprises a UDP transport component to manage connections over the network; the motivation being that UDP is a protocol to exchange data packets from a SGSN to a GGSN over a packet-switched network when a reliable data link is not required. UDP does not provide sequencing of data packets arriving at the destination, thereby saving

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network processing time. Network applications having small messages to transmit can save processing time by using UDP. Refer to Column 7, lines 35-47.

Referring to claim 21, Mustajarvi et al do not disclose that the SGSN further comprises a network services layer to transport data units containing signaling and bearer traffic over the network.

Nevo et al disclose in Figure 2B that the SGSN (Element 52) comprises a network services layer to transport BSSGP packet data units (PDUs) between the BSS and SGSN over a frame relay connection. "The BSSGP layer conveys routing and information related to quality of service (QOS) between the BSS 32 (or BSS 30) and SGSN 52" (Column 7, lines 1-3). Layers shown in Figure 2B are communications protocol layers "required to adapt a signaling and data stream from MS 40 for transport to GPRS 50" (Column 7, lines 61-63). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include that the SGSN comprises a network services layer to transport data units over the network; the motivation being that a network services layer transports BSSGP PDUs between the BSS and SGSN, conveying routing and QOS information. Refer to Column 6, line 60 to Column 7, line 6.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (703) 305-8395. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Chau can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8395.

C. Ng *cu*
December 19, 2003


KENNETH VANDERPUYE
PRIMARY EXAMINER